

Application No. 10/633,333
Amendment filed September 30, 2004
Response to Office Action mailed August 2, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Previously Presented) A damper device for an air handling system, comprising:
 - a frame defining an air flow opening;
 - at least one damper vane coupled to the frame;
 - a motor including a shaft coupled to the vane to move the damper vane between open and closed positions; and
 - a sensor positioned to sense when the damper vane reaches a home position;wherein the damper vane moves from a home position in which the sensor senses the damper vane to a second position in which the damper vane is not sensed by any sensor, and back to the home position; wherein the home position is reset when the sensor senses that the damper vane has reached the home position.
2. (Original) The damper of claim 1, further comprising an arm coupled to the shaft and having a magnet positioned thereon, the arm being generally aligned with the damper vane and moving as the vane moves from the closed position to the open position.
3. (Original) The damper of claim 1, wherein the sensor is a Hall Effect sensor.
4. (Original) The damper of claim 1, further comprising a microcontroller coupled to the sensor, the microcontroller resetting the home position upon receipt of an index signal from the sensor.

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5. (Original) The damper of claim 1, wherein the home position is the closed position.
6. (Original) The damper of claim 1, wherein the motor is a stepper motor.
7. (Original) A damper device for an air handling system, comprising:
 - a frame defining an air flow opening;
 - at least one damper vane coupled to the frame;
 - a stepper motor including a shaft with a first end extending through a hole defined by the frame and being coupled to the damper vane to move the damper vane between open and closed positions, the shaft also including a second end having an arm coupled thereto, the arm including a magnet, wherein the arm is generally aligned with the damper vane and rotates with the vane as the shaft moves the vane from the open to the closed position;
 - a circuit board coupled to the frame and positioned to at least partially overlap the arm, the circuit board including a Hall Effect sensor positioned to sense when the arm with the magnet passes in close proximity thereto; and
 - a microcontroller coupled to the Hall Effect sensor, the microcontroller resetting a home position upon receipt of an index signal from the Hall Effect sensor.
8. (Original) A positioning system for a vane of a damper device, comprising:
 - a Hall Effect sensor configured to sense when a position indicator including a magnet that is coupled to the vane reaches a home position and thereupon generate an index signal; and
 - a microcontroller coupled to the sensor, the microcontroller resetting the home position of the vane upon receipt of the index signal.

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9. (Original) The system of claim 8, wherein the microcontroller is configured to sense an interval between when the index signal starts and when the index signal ends, and wherein the microcontroller is configured to select a midpoint of the interval as the home position.

10. (Original) The system of claim 8, wherein the system is configured to reset the home position upon initialization.

11. (Original) A method for controlling a position of a vane of a damper, the method comprising:

providing a magnet to move as the vane moves;
providing a sensor to sense when the magnet comes into close proximity thereto;
moving the vane between an open and a closed position;
generating an index signal when the magnet passes in close proximity to the sensor; and
setting a home position based on the index signal.

12. (Original) The method of claim 11, wherein the setting step further comprises:

measuring when the index signal starts;
measuring when the index signal ends;
selecting a midpoint between the start and the end of the index signal as the home position; and
returning the vane to the home position.

13. (Original) A method of positioning a vane of a damper upon initialization, the method comprising:

moving the vane;

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generating an index signal when a position indicator coupled to the vane passes in close proximity to a sensing device; and setting a home position based on the index signal.

14. (Original) The method of claim 13, wherein the setting step further comprises:

measuring when the index signal starts;
measuring when the index signal ends;
selecting a midpoint between the start and the end of the index signal as the home position; and
returning the vane to the home position.

15. (Previously Presented) A damper device for an air handling system, comprising:

a frame defining an air flow opening;
at least one damper vane coupled to the frame;
a motor including a shaft coupled to the vane to move the damper vane between open and closed positions; and
at least one sensor positioned to sense when the damper vane reaches a home position;
wherein the damper vane rotates in a circular path from a home position in which the sensor senses the damper vane to a second position in which the damper vane is not sensed by any sensor in the device, and back to the home position;
wherein the home position is reset when the sensor senses that the damper vane has reached the home position.

In the Drawings

Attached to the Appendix hereto are eight replacement sheets including Figures 3A-3E, 8-12, and 17. Figures 3A-3E replace Figure 3 as filed.

Approved
10/18/04